

# UNITED STATES SIGNAL SERVICE

## MONTHLY WEATHER REVIEW.

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### INTRODUCTION.

This REVIEW is based on reports for December, 1889, from 1,928 regular and voluntary observers in the United States and Canada. These reports are classified as follows: 171 reports from Signal Service stations; 118 monthly reports from United States Army post surgeons; 1,266 monthly reports from state weather service and voluntary observers; 25 reports from Canadian stations; 348 marine reports through the co-operation of the Hydrographic Office, Navy Department; marine reports through the "New York Herald Weather Service;" monthly weather reports from the local weather services of Alabama, Arkansas, Colorado, North and South Dakota,

Illinois, Indiana, Iowa, the Iowa Weather Crop Bulletin Service, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Meteorological Report of the Missouri State Board of Agriculture, Nebraska, Nevada, New England, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, and Texas, and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used. Snow blockades or floods prevented the forwarding of reports of the Central Pacific Railway Company and the rainfall observations of the United States Geological Survey in the southern plateau region in time to be used in this issue of the REVIEW.

### CHARACTERISTICS OF THE WEATHER FOR DECEMBER, 1889.

East of the Rocky Mountains and south of the Great Lakes the current month was the warmest and driest December in the history of the Signal Service, while in parts of southern California the reverse of these conditions obtained and the greatest rainfall and the lowest mean temperature ever noted for December were reported.

The mean temperature for the month was above the average for December, except in the Pacific coast states and adjoining parts of the plateau region. The most marked departures above the average temperature occurred within an area embracing the lower Ohio and middle Mississippi valleys, where they generally exceeded 15°, and where, at Cairo, Ill., and Memphis, Tenn., they amounted to 17°.2. Along the Pacific coast the departures below the average temperature were less than 5°. At fifty-eight out of a total of eighty-nine regular stations of the Signal Service east of the Rocky Mountains having a record of ten years or more, and at the older established stations in New Mexico, Arizona, and Utah, the mean temperature was the highest December mean temperature ever reported, and at forty-one of these stations the absolute maximum temperature was higher than noted for the corresponding month of preceding years. At San Diego, Cal., nineteen years record, the mean temperature was the lowest ever noted for December. Over the country east of the Rocky Mountains the highest mean temperature previously reported for December generally occurred in 1877, except in New York and New England in 1881, in the south Atlantic and east Gulf states in 1879, and in the west Gulf states in 1875 or 1879, and the lowest December mean temperature generally occurred in the Mississippi Valley and eastward in 1876. The highest absolute temperature reported for December, 1889, was 100°, at Simpsonville, S. C., and the absolute minimum temperature was -24°, at Fraser, Colo. The lowest temperature ever reported for December was -59°, at Fort Benton, Mont., in 1880. No damaging frosts were reported for December, 1889, in the south Atlantic and Gulf states, which fact may be attributed to the unusually high temperature in that region.

On the Pacific coast light frost occurred as far south as San Diego, Cal., on several dates.

The precipitation for the current month was the least ever reported for December at stations in Arkansas, Texas, Kansas, Iowa, Tennessee, Virginia, North Carolina, South Carolina, Georgia, and Florida, while at Los Angeles, Cal., the monthly rainfall, 15.80 inches, was the heaviest ever reported for one month at that station. The heaviest precipitation reported for December, 1889, was 29.36 inches, at Upper Mattole, Humboldt Co., Cal., and the precipitation exceeded twenty inches in the eastern Sacramento valley, between the thirty-eighth and fortieth parallels, and in areas along the California coast, north of the thirty-sixth parallel. In areas in east-central Arkansas, western Florida, eastern Georgia, northern Indian Territory, central, south-central, and western Kansas, extreme northwestern Missouri, southeastern Nebraska, extreme southern South Carolina, central Virginia, and east-central Wyoming no precipitation was reported. The greatest excesses in precipitation for December, 1889, occurred on the south Atlantic coast, where more than four times the usual amount of rain for the month fell, and on the middle Pacific coast and over the middle plateau region, where the precipitation was more than double the usual amount for December. The precipitation was also above the average for December over the eastern part of the Dakotas, in the Lake region, and in northern New England, the lower Saint Lawrence valley, and northern New Brunswick. In all districts east of the Rocky Mountains and south of the Lake region, except in the Missouri and upper Mississippi valleys, the precipitation was less than fifty per cent., and on the southeastern slope of the Rocky Mountains less than one per cent. of the usual amount of precipitation for December.

The greatest depth of snowfall reported was eighty-one and one-half inches, at Tuscarora, Nev. In northeastern California and northwestern Wyoming it exceeded sixty inches; in extreme northern Idaho, forty inches; in southwestern Colorado, extreme northern Michigan, and east-central Washington, thirty inches; in northwestern Minnesota, extreme western